Core Content For Science Assessment

Draft for Assessment Contractors

Version 4.0
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Kentucky Department of Education

Introduction Core Content for Science Assessment

What is the *Core Content for Science Assessment*?
The *Core Content for Science Assessment* represents the content from Kentucky's Academic Expectations and *Program of Studies* that is essential for all students to know and the content that is fair game to assess on Kentucky's state assessment. It captures the "big ideas" of the content area. Version 4.0 *Core Content for Science Assessment* and the Academic Expectations provide the parameters for test developers as they design the state assessment items. These content standards and expectations provide focus for the development of the 2007 Kentucky Core Content Test (KCCT).

The *Core Content for Science Assessment* is not intended to represent the comprehensive local curriculum for science assessment and instruction. It is also not the comprehensive *Program of Studies for Science,* which specifies the minimum content for the required credits for high school graduation, and the primary, intermediate and middle level programs leading to these requirements.

Kentucky Academic Expectations for Science

The Kentucky Academic Expectations define what students should know and be able to do upon graduation from high school. These large goals were used as a basis for developing the *Program of Studies* and the *Core Content for Assessment*.

The academic expectations for science are listed below:

Goal 2: Students shall develop their abilities to apply core concepts and principles from mathematics, the sciences, the arts, the humanities, social studies, practical living studies, and vocational studies to what they will encounter throughout their lives.

2.1 Students understand scientific ways of thinking and working and use those methods to solve real-life problems.
2.2 Students identify, analyze, and use patterns such as cycles and trends to understand past and present events and predict possible future events.
2.3 Students identify and analyze systems and the ways their components work together or affect each other.

2.4 Students use the concept of scale and scientific models to explain the organization and functioning of living and nonliving things and predict other characteristics that might be observed.
2.5 Students understand that under certain conditions nature tends to remain the same or move toward a balance.
2.6 Students understand how living and nonliving things change over time and the factors that influence the changes.

How is the *Core Content for Science Assessment* organized?
The *Science Core Content for Assessment, Version 4.0* is organized by grade level (end of primary – 3rd, 4th, 5th, 6th, 7th, 8th, and high school) in order to ensure continuity and conceptual development even though the current state assessment varies for those grade levels based on the content area. This is different from the current 3.0 Version, which is organized in grade spans. This version of the *Core Content for Science Assessment* includes 'off year' content standards as well as content for the currently assessed grades (four, seven, and eleven).

This version of the *Core Content for Science Assessment* has been organized around reporting categories and "Big Ideas," based on those found in the *ATLAS of Science Literacy*. The American Association published the ATLAS jointly for the Advancement of Science (AAAS) and the National Science Teachers Association (NSTA). Other national research-based resources used to make the determinations for content placement included *Benchmarks for Science Literacy* and *Science for All Americans.*

Each section has a narrative describing the "Big Idea," showing how the conceptual development of key concepts should spiral through the K-12 grades, and highlighting the unifying themes (Academic Expectations) and process skills that will provide rigor and help students to understand the content.

The reporting categories and "Big Ideas" for science are:

Reporting Categories	Big Ideas
Physical Science	Structure and Transformation of Matter
Earth/Space Science	Motion and Forces
Biological Science	The Earth and The Universe
Unifying Concepts	Unity and Diversity
	Biological Change

Energy Transformations
Interdependence

What do the codes for the *Core Content for Science Assessment* mean?
Each content statement is preceded by a code. The code begins with SC for science and is then followed by a grade level designation and then a 3-digit number that indicates reporting category, big idea, and sequential number, respectively. The codes used are listed below.

Grade Level Codes	Reporting Categories	Big Ideas
P = end of primary	1 = Physical Science	1 = Structure and Transformation of Matter
E4 = 4th grade	2 = Earth/Space Science	2 = Motion and Forces
M5 = 5th grade	3 = Biological Science	3 = The Earth and The Universe
M6 = 6th grade	4 = Unifying Concepts	4 = Unity and Diversity
M7 = 7th grade		5 = Biological Change
H8 = 8th grade		6 = Energy Transformations
HS – High school		7 = Interdependence

A typical code may look like SC-M6-1.2.1. This means 6th grade science content in physical science, specifically Motion and Forces, and it is the first statement listed for that big idea at that grade level.

Core content statements are **bolded for "state assessment**" or *italicized* for "*supporting content but not for state assessment*". The intent is to show what core content statements are fair game to be assessed on the Kentucky Core Content Test (KCCT) and those that instructionally support the state assessed content, but will not be assessed at the state level. The content statements for the state assessment have been clarified with verbs to represent what students will be expected to do and to reflect the depth of knowledge and cognitive complexity expected for the state assessment. They are not meant to limit the cognitive complexity for instruction in the classroom. In order for students to perform at a high level on the KCCT, they need to have mastered the supporting content as well as the state assessed content. These recommendations have been made in consultation with International and National Standards, the *Program of Studies for Kentucky Schools*, classroom teachers, and content experts.

Some Core Content standards contain additional information in parentheses. If there is a list inside with an e.g., preceding it, that means the examples included are meant to be just that, examples. However, if the list is not preceded by an e.g., the list is to be considered exhaustive and those items are the only items that are “fair game” for assessment.